



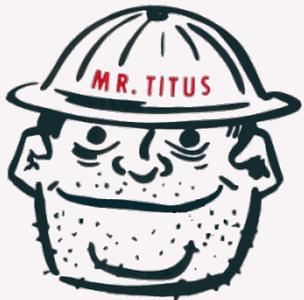
2011 Recycling Opportunities, Challenges, and beyond...

Carton Council Forum September 2011



Agenda

- Trends in Single Stream Material Composition
- Trends in Extended Producer Responsibility
- New Materials Opportunities
- Equipment: lessons learned and new developments





Single Stream Material Composition



- Large fiber is going away
 - iPad and laptop for reading the paper
 - Generational Gap on papers delivered to the home
 - More than a 24% drop in paper volume in last 3 years
- Municipalities are telling residents everything is recyclable
 - Over 2000 communities recycled 3-7
 - In California it seems if it is dry it goes in curbside container; is this a trend?
 - Communities want to tout diversion from landfills





Extended Producer Responsibility

- New Laws passed in California
 - Carpet Recycling Law
- Manufacturers and Brand owners are paying attention to end of life and impact on product footprint.
 - Major consumer companies attending and speaking at recycling conferences?
 - O-I
 - P&G
 - Organizations formed to recycle specific materials or packages





Organizations formed to Recycle Specific Materials or Packages

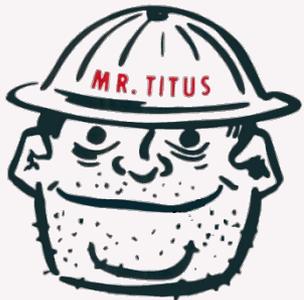
- **Carton Council**
 - Aseptic Packaging
 - Cartons
- **BioCor**
 - PLA
 - Bio Plastics
- PP “Gimme five” pilot program
- APR formed Rigids Committee to explore method to increase plastics recycling





How do these Trends Impact your MRF Facility?

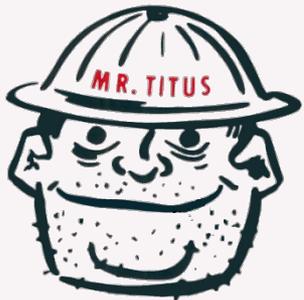
- Less Fiber volume to sell
- Fiber Volume replaced by lighter mixed plastics
- New packages consumers choose to recycle
- Tons/hour may not be the optimal measurement at your facility
 - Need to compare Sales Revenue per product to determine if less throughput yields higher revenue
 - Man-hours deployed to extract highest value product or insure high quality?





Equipment to consider for your MRF

- Presort belt the longer the better
 - Never know what is in the container vs. what your equipment is designed to separate
- Drum Feeder reduces black belt
 - Throughput is more volume driven vs. ton driven (catch up?)
- Need to maintain discs on rolls screens to improve paper/container separation
 - The angle of the screens will dictate the percentage of cartons and containers on the fiber line and vice versa





New Equipment to consider for your MRF

Technologies refined over past 24 months:

- **Titus Paper Container Separator**
 - Positive sort of lights and whites
- **Titus Glass Cleaning System**
 - Positive sort of shred and ferrous
- **Optical sorters on container line**
 - Positive sort of cartons
 - Positive sort of heavy fiber
 - Positive sort of various plastics
- **Optical sorters on fiber line: TBD**





Paper Container Separator





Fiber Recovery





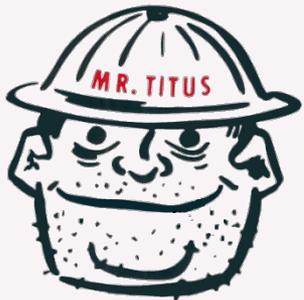
Paper Container Separator





Titus Paper Container Cleaning System

- Designed to remove fiber from Containers greater than 2.5 inches in size
- Increases fiber yield for a 4000 tpm plant 3 to 4 bales per day on one pass.
- Allows for effective installation of optical sorters on a container line.
 - **Material density is more consistent allowing for machine detection and removal to remain in sync.**
 - **Less light paper on container line allows for easy detection and if manual operation easier sorting of plastics.**
 - **Less light material eliminates the need to dress Alum and Ferrous bales given light fiber is not moving with the metal when using a cross-belt magnet or eddy current to remove these items.**





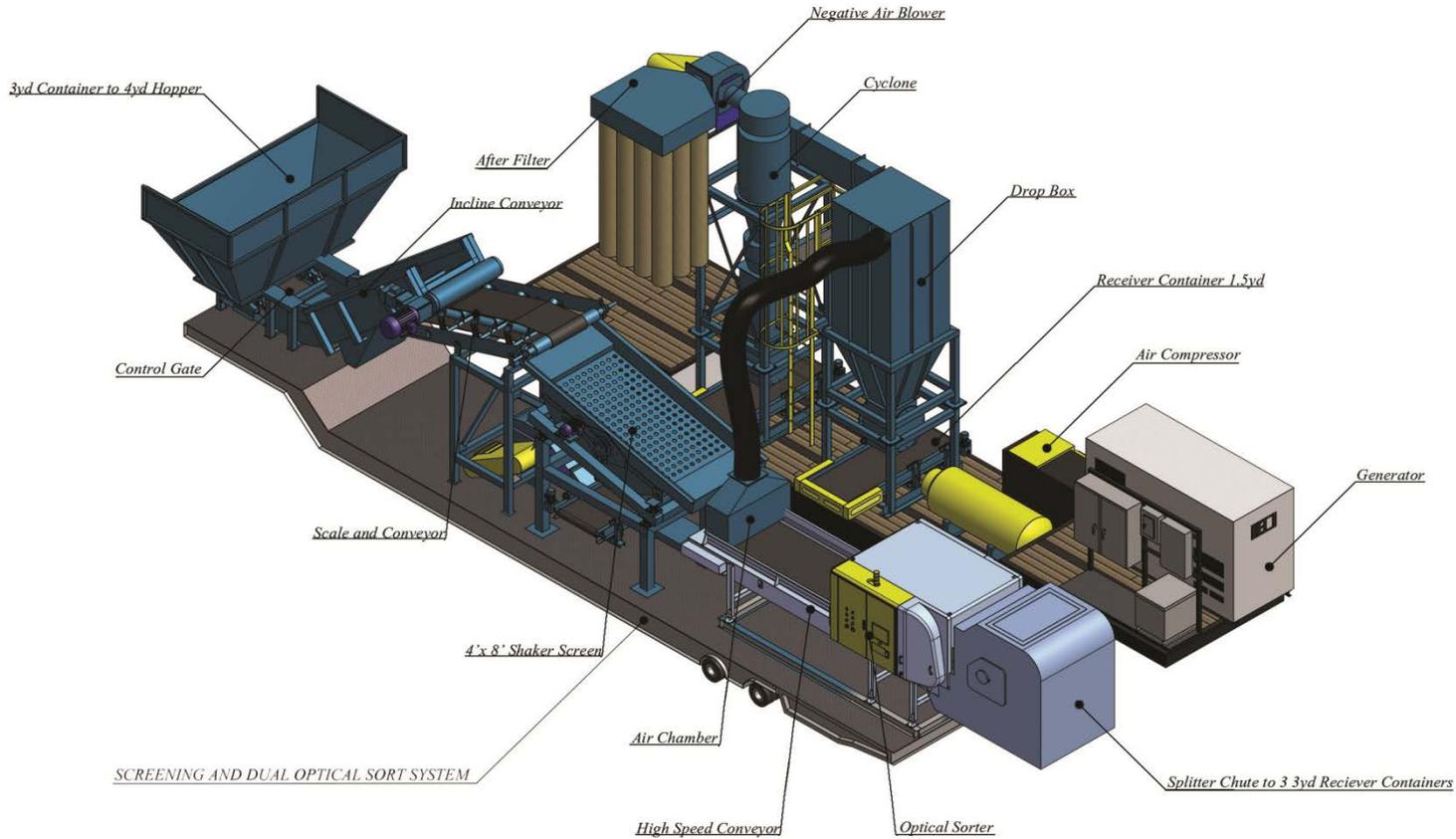
Titus Porta Sort: "Optical Sort Effectiveness testing"

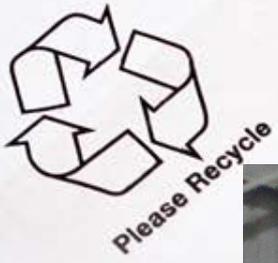
- Joint project with Pellenc Selective Technologies and Future 500
- Demonstrates an effective installation of optical sorters on a container line.
 - Material density is more consistent allowing for machine detection and removal to remain in sync.
 - Less light paper on container line allows for easy detection and if manual operation easier sorting of plastics.
 - Less light material eliminates the need to dress Alum and Ferrous bales given light fiber is not moving with the metal when using a cross-belt magnet or eddy current to remove these items.
- **Assists in making decisions on how best to re-design a MRF to recover more cartons.**





Porta Sort



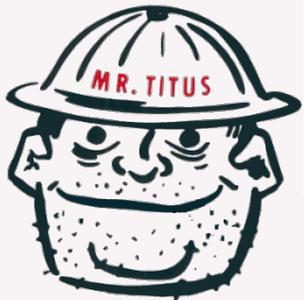


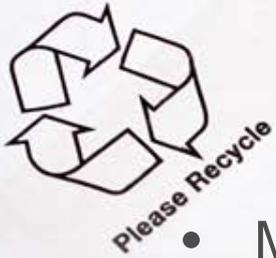
Porta Sort





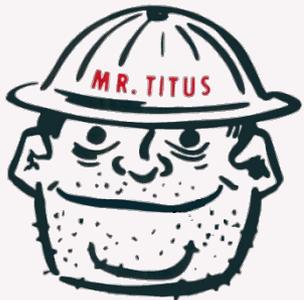
Porta Sort





Conclusions

- MRF revenue stream is changing due to reduction in fiber and increase in what communities call “recyclable”
- MRF equipment and operations must change to remove light fiber from container line on one pass for effective cost control.
- **MRF equipment and operations must change to better separate cartons and containers for higher per pound revenue to replace lost fiber sales.**
- MRF operators will need to look at further separation to capture material value as end markets develop for lower footprint scrap packaging.
- Packaging Companies that choose more sustainable packaging material will need to develop incentives for recyclers to separate”
 - **Scrap Price**
 - **Cross Material Collection to help reach critical Mass**
 - **Pilot Projects to demonstrate cost effective method to recycle and separate**
 - **OR MODEL THE CARTON COUNCIL POA**





925-548-3093

<http://vimeo.com/27069017>

Video line Google "Porta Sort Vimeo":